

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

LG.PHILIPS LCD CO., LTD.,

Plaintiff/Counterclaim Defendant,

v.

TATUNG COMPANY;
TATUNG COMPANY OF AMERICA, INC.;
CHUNGHWA PICTURE TUBES, LTD.;
AND VIEWSONIC CORPORATION,

Defendants/Counterclaim Plaintiffs.

Civil Action No. 05-292 (JJF)

**DECLARATION OF SCOTT H. HOLMBERG IN SUPPORT OF
PLAINTIFF LG.PHILIPS LCD CO., LTD.'S RESPONSE BRIEF
IN SUPPORT OF ITS PROPOSED CLAIM CONSTRUCTIONS [D.I. 143]**

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DECLARATION OF SCOTT H. HOLMBERG

I, Scott Holmberg, declare under penalty of perjury as follows:

1. I am submitting this declaration in rebuttal to the claim constructions proposed by defendants and in rebuttal to the declaration submitted by defendants regarding U.S. Patent No. 5,019,002 (herein "the '002 patent").

2. I have personal knowledge of the facts stated in this declaration, and if called upon as a witness, I could competently testify to the facts stated herein.

3. I am a resident of the state of California, residing at 3106 Las Palmas Avenue, Escondido, CA 92025.

4. I received a Bachelor of Science in the field of Electrical Engineering from Wayne State University, and have received training in SPC, ISO-9000, BPR and numerous technical topics.

5. I have over thirty (30) years of engineering and management experience in the semiconductor and electronic display industry, including the design and development of one of the world's first fully functional Active Matrix Liquid Crystal Displays (AMLCD) in 1982.

6. I have authored numerous publications; and am a named inventor on twenty-one (21) issued patents. More detailed information about my background, experience and achievements can be found in my resume which is attached as *Exhibit 1*.

7. Given my background, experience, knowledge and education, I am regarded as an expert in process development, facility planning, device characterization and engineering operations.

8. I am the inventor of the '002 Patent, entitled "Method of Manufacturing Flat Panel Backplanes Including Electrostatic Discharge Prevention and Displays Made Thereby," which relates to the protection of the circuit elements of liquid crystal display panels (LCD panels) from damage caused by electrostatic discharge. I have reviewed the parties' proposed constructions of the disputed terms of the '002 Patent.

9. During the manufacture of the LCD panel, electrostatic discharge can occur when a high static electric potential is coupled across at least one pair of row and column lines. Electrostatic discharge is undesirable because it generally causes a short, and thus damaging the pixel. When this occurs, the LCD panel manufacturer may be unable to use the entire backplane of the active matrix display. The high occurrence of unusable product in turn causes the manufacturer to suffer an increased manufacturing cost.

10. To protect the device from electrostatic discharge during manufacture, the '002 Patent discloses a technique that employs electrostatic discharge guard rings around the active elements of the display. To protect the matrix from electrostatic discharge, the manufacturing technique of the '002 Patent employs an outer electrostatic discharge guard ring, which is connected to the row and column lines. Furthermore, because the outer electrostatic discharge guard ring is not necessary after manufacturing, the outer electrostatic discharge guard ring is positioned outside of the active matrix display and in particular around the contact pads of the row and column lines. In this manner, after manufacture is completed, the outer electrostatic discharge guard ring can be easily removed.

11. The '002 Patent also discloses an inner electrostatic discharge guard ring located inside the outer electrostatic discharge guard ring to also serve to protect against electrostatic discharge.

12. In the context of the '002 Patent, "outer electrostatic discharge guard ring" does not mean "a ring of conductor, located external to the inner electrostatic discharge guard ring if the two rings are used together, for draining off electrostatic buildup to prevent electrostatic discharge" as Defendants contend.

13. The "outer" location of the electrostatic discharge guard ring is with reference to the active matrix and not to the inner guard ring. Accordingly, it is incorrect to define the location of the outer electrostatic discharge guard ring referencing an inner electrostatic discharge guard ring.

14. Additionally, the electrostatic discharge guard ring does not "prevent electrostatic discharges" from occurring as contended by the Defendants. There are various sources of electrostatic discharge during the manufacturing process. For example, the electrostatic discharge may be caused by contact with a charged source, or it may accumulate during a plasma process or a drying process. Rather than preventing the electrostatic discharge, the guard ring protects the circuit from the electrostatic discharge which inevitably occurs during manufacturing. Moreover, as explained below, the ordinary meaning of "electrostatic discharges" is not limited to charge buildup, and it is erroneous to limit the electrostatic discharge guard ring to only "draining off electrostatic buildup."

15. The proper definition for "outer electrostatic discharge guard ring" is "a closed or open ring, or open L or C-shaped line, outside the active matrix display to

provide protection from electrostatic discharges.” This definition more accurately describes the location and function of the outer electrostatic discharge guard ring. Additionally, this definition properly describes that the “ring” may be a closed or open L or C-shaped line, a feature that the Defendants excluded from their definition.

16. The term “electrostatic discharges” does not mean “a flow of electrical current caused by a buildup of static electrical charges” as defined by the Defendants. There are various causes of electrostatic discharge. In some instances, the electrostatic discharge accumulates during a manufacturing process. For example, during a plasma process, charges accumulate to form a voltage differential resulting in an electrostatic discharge. Additionally, however, “electrostatic discharges” can be induced by a charged body touching the device or by other charges that are suddenly transferred to the circuit. Accordingly, the proper construction for “electrostatic discharges” is “a release of current resulting from a voltage differential caused by static electricity.”

17. In the context of the ‘002 Patent, “inner electrostatic discharge guard ring” does not mean “a ring of conductor, located internal to the outer electrostatic discharge guard ring if the two rings are used together, for draining off electrostatic buildup to prevent electrostatic discharges,” as Defendants contend. This definition is erroneous for the same reasons discussed above with respect to “outer electrostatic discharge guard ring.” Defendants incorrectly construe the inner electrostatic discharge guard ring as preventing electrostatic discharges. Instead, the inner electrostatic discharge guard ring protects the circuit from electrostatic discharges. By Defendants’ definition, the function of the inner electrostatic discharge guard ring is limited to “electrostatic buildup,” which

is not the only source of electrostatic discharge. Therefore, the Defendants' definition is unduly limiting.

18. Thus, "inner electrostatic discharge guard ring" should be "a closed or open ring, or open L or C-shaped line, inside the outer guard ring to provide protection from electrostatic discharges."

19. In the context of the '002 Patent, "interconnecting" does not mean "electrically connecting with conductors," as Defendants contend. This term is more properly defined as "shorting." Defendants' definition is unduly limited to using conductors. However, the interconnecting may also be accomplished using semiconductive material. For example, a device such as a transistor or a resistance may be the "interconnecting" elements. Accordingly, "shorting," which is not unduly limited to the use of conductors, is a more accurate definition for the term "interconnecting."

20. Defendants construe "interconnecting substantially all of said row lines to one another" to mean "electrically connecting with conductors all, or nearly all, of row lines to one another"; and separately construe "interconnecting . . . substantially all of said column lines to one another" to mean "electrically connecting with conductors all, or nearly all, of column lines to one another." This construction is improper. With their definitions, Defendants require electrically connecting "all, or nearly all" of the row and column lines. However, it is possible to protect the circuit from electrostatic discharge even by interconnecting some of the rows and some of the columns. Accordingly, the phrase should not be limited to "all, or nearly all." A more appropriate definition is "sufficiently interconnecting said row lines to one another and said columns lines to one another to provide protection from electrostatic discharge."

21. In the context of the '002 Patent, the phrase "coupled to said interconnected row and column lines via a resistance" is clear to one of ordinary skill in the art. This phrase does not mean "linked through one or more resistors to the interconnected column lines and to the interconnected row lines," as Defendants contend. This phrase is clear on its face and should not be limited to mean independently connecting the row and column lines to the electrostatic discharge ring. Since "coupled" means "electrically connected," the proper definition should be "electrically connected to said interconnected row and column lines via a resistance" without limiting the manner in which the column and row lines are connected to the outer electrostatic discharge guard ring.

22. Additionally, Defendants' interpretation of "resistance" attempts to improperly equate "resistance" with "resistor." Specifically, Defendants construe resistance as:

"A resistance, as it is used in the claims, means a resistor, which is a circuit element that has a specified resistance to the flow of electrical current. A resistance does not include switching elements such as transistors and diodes."

This definition is erroneously limiting. It is well understood that many elements have resistances including active elements such as transistors and diodes. Such active elements are often used to specifically provide resistance, in which the resistance is controlled with a gate potential. It is improper to state that only a "resistor" is the source of a resistance. Accordingly, as used in the '002 Patent, the term "resistance" is more properly defined as "any component used to cause a voltage drop during current flow."

23. In context of the '002 Patent, the meaning of the phrase "removing said outer guard ring and row and column interconnections" is clear to one of ordinary skill in the art. It is inappropriate to interpret this phrase to mean "electrically disconnecting the interconnections between rows and between columns, and electrically disconnecting row and column lines from the outer guard ring," as Defendants contend. Removal of the outer electrostatic discharge guard ring means the actual physical disconnection of the outer electrostatic discharge guard ring. Defendants are improperly defining the term "removing" to mean "electrically disconnecting." However, one of ordinary skill in the art understands removing to mean physically disconnecting. As such, the proper definition of "removing said outer guard ring and row and column interconnections" is physically disconnecting said outer electrostatic discharge guard ring and row and column interconnections.

24. In the context of the '002 Patent, "pickup pad" does not mean "a pad located at the corner region of a backplane for aligning the frontplane and backplane," as Defendants contend. This definition is incorrect because the "pickup pad" is not used for aligning the frontplane and backplane. In the '002 Patent, the frontplane and backplane are aligned using "corner 218." The pickup pad, however, is a "conductive area used to electrically connect the backplane to the frontplane."

25. In the context of the '002 Patent, a "shunt switching element" does not mean "a device that is capable of switching between on and off states (e.g., a transistor or diode) to open or close a by-pass for diverting electrical current," as Defendants contend. This definition is unduly limiting and improper. One of ordinary skill in the art would define this term as a "parallel switching device."

26. In the context of the '002 Patent, the meaning of the term "corner pad" is clear to one of ordinary skill in the art. This term does not mean "a pad of metal or other conductive materials that is located at the corner of an outer guard ring, and electrically connected with the outer ring," as Defendants contend. Although the "corner pad" can be grounded, it does provide the alignment for the scribe lines. Thus, "corner pad" is interpreted to mean "a reference mark for cutting," and may or may not be grounded.

27. The meaning of the term "scribe line" is clear to one of ordinary skill in the art. It does not mean "a predefined line along which the glass substrate can be marked with a sharp tool either to disconnect the conductor patterns along the line or to initiate the fracture of the glass substrate along the line," as Defendants contend. As discussed previously, the outer electrostatic discharge guard ring is physically disconnected. Use of a scribe line is generally employed to ultimately cut and physically disconnect a portion of the substrate. Accordingly, it is improper to construe the term "scribe line" as something that merely disconnects conductor patterns. Instead, a proper interpretation for the term "scribe line" is a "cutting line based on reference marks."

28. In the context of the '002 Patent, the phrase "aligning scribe lines with said corner pad for removing said outer guard ring and row and column intersections" is clear to one of ordinary skill in the art. It does not mean "aligning each scribe line with one edge of the corner pad for disconnecting the outer guard ring and the row and column interconnections," as Defendants contend. As discussed above, the scribe line is used to cut a portion of the substrate so that the outer electrostatic discharge guard ring is physically disconnected. Additionally, Defendants' definition is improper for interpreting "corner pad" as "one edge of the corner pad." There is no basis for this

interpretation. Moreover, Defendants have not interpreted the term aligning. A proper definition for “aligning” is “adjusting.”

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on MARCH 15, 2006 at ESCONDIDO, CALIFORNIA.


Scott H. Holmberg

CERTIFICATE OF SERVICE

The undersigned counsel certifies that, on March 17, 2006, he electronically filed the foregoing document with the Clerk of the Court using CM/ECF, which will send automatic notification of the filing to the following:

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The undersigned counsel further certifies that copies of the foregoing document were sent by email and hand to the above counsel and by email and first class mail to the following non-registered participants:

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/s/ Richard D. Kirk (rk0922)
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